1000 Abernathy Road, NE
Atlanta, Georgia 30328

April 9, 2018

VIA ELECTRONIC MAIL

Karen G. Sabasteanski
Policy Analyst
Office of Regulatory Affairs
Virginia Department of Environmental Quality
P.O. Box 1105
Richmond, Virginia 23218

Re: Comments of WestRock Company on the DEQ's Proposed Regulation for Emissions Trading, 9 VAC 5-140, Part VII, 34 Va. Reg. 924 (Jan. 8, 2018)

Dear Ms. Sabasteanski:

WestRock appreciates the opportunity to submit these comments on the Viriginia Department of Environmental Quality's (DEQ's) proposed *Regulation for Emissions Trading* (the "Proposed Rule"). The purpose of the Proposed Regulation is to reduce and cap carbon dioxide (CO_2) emissions from fossil fuel fired electric power generating facilities by means of participation in an interstate trading program known as the Regional Greenhouse Gas Initiative or "RGGI."

WestRock is a global packaging solutions company with eight manufacturing facilities in the Commonwealth of Virginia, including four pulp and paper mills. In Virginia, we employ approximately 3,000 co-workers in family wage jobs and contribute over $1 billion directly to the state's economy through salaries, supplier spend, taxes and energy purchases. The products we make in Virginia are shipped throughout the U.S. and around the world, and WestRock is the largest exporter by volume from the Port of Virginia.

WestRock has established a series of voluntary goals to support the three pillars of our sustainability platform: People, Planet, Performance. One of our environmental goals is to reduce carbon dioxide equivalent (CO_{2e}) emissions by 20% per ton of production from a 2015 baseline by 2020. Use of renewable, carbon-neutral biomass and highly efficient combined heat and power (CHP) technology are key components of our strategy for achieving this goal. Our Virginia mills produce between 80% and 100% of their own energy, primarily from renewable, responsibly sourced biomass, and collectively reduced their CO_{2e} emissions per ton of production by 38% between 2013 and 2017.

While WestRock self-generates a considerable portion of its own energy needs at our largest manufacturing facilities, having access to sufficient quantities of utility-provided electricity at reasonable prices is critical to our business for reliability and economic reasons. Some of our mills are entirely energy independent, but others must purchase a significant portion of their electricity from the grid. Our converting operations in Virginia rely heavily on purchased electricity. WestRock spends over $100 million annually on energy in Virginia. As a large electricity consumer in the Commonwealth that also uses considerable amounts of biomass for energy generation, WestRock will be substantially affected by the Proposed Rule.

We are a member of the American Forest & Paper Association (AF&PA) and the National Council for Air and Stream Improvement (NCASI). WestRock supports the comments submitted by these organizations, which include the scientific and public policy reasons for treating biogenic emissions as carbon neutral, and we urge the Department to revise the Proposed Rule so that it treats all biomass emissions of CO_2 as carbon neutral. We also support DEQ's decision to apply the Proposed Rule to electric utilities and exclude industrial sources. Our positions on these issues are discussed more fully below.

1. Biomass Carbon Neutrality

The Proposed Rule states that if biomass comprises 90% or more of the total heat input to an electric generating unit, the unit and its biogenic CO_2 emissions are not regulated. However, if biomass comprises less than 90% of the heat input to an electric generating unit, biogenic CO_2 emissions are regulated and allowances must be remitted for all CO_2 emissions from that unit. WestRock believes that the Proposed Rule's treatment of biogenic CO_2 emissions is arbitrary and capricious. Biomass carbon neutrality does not change based on the amount of biomass fired, nor does it change when biomass is co-fired with other fuels. Additionally, the Proposed Rule's treatment of CO_2 emissions from the combustion of biomass represents a significant departure from current U.S. federal law, internationally-accepted carbon accounting protocols, and the existing RGGI model rule.

a. Biomass is a renewable energy resource that provides significant carbon cycle benefits.

The well-established carbon benefits of biomass are best understood in the context of the entire carbon cycle. As forests grow, carbon dioxide (CO_2) is removed from the atmosphere through photosynthesis. This CO_2 is converted into organic carbon and stored in woody biomass. Trees release the stored carbon when they die and decay or are combusted. As the biomass releases carbon in the form of CO_2, the carbon cycle is completed. The carbon in biomass will return to the atmosphere regardless of whether it is burned to produce energy, allowed to biodegrade, or lost in a forest fire.

Overall, the flow of forest CO_2 is carbon positive when forests are sustainably managed and the forest system remains a net sink of CO_2 from the atmosphere. Carbon stock accounting shows that carbon storage in U.S. forests is positive (a net sink) and currently offsets about 12% of total U.S. CO_2 emissions annually.[1] In Virginia, the growth of the state's forests offsets about 14% the total annual carbon dioxide emissions.[2] In 2014, the ratio of the forest's annual growth compared to harvest volume (on private and state lands) was more than 2.1:1 for softwood species and 2.2:1 for hardwood species.[3] This amounts to an annual surplus of 8.4 million tons of softwood and 14 million tons of hardwood state-wide.[4]

Biomass residuals from the manufacturing process (e.g., bark, spent pulping liquor, sawdust, shavings, and paper residuals that cannot be used for products) are used as the primary fuel to power paper mills. If these residuals are landfilled instead of being used as fuel, they would release greenhouse gases (GHG) to the atmosphere, increasing emissions of methane, which

---

[1] Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2015" (EPA, April 2017)
[2] http://www.dof.virginia.gov/infopubs/_sof/SOF-2016_pub.pdf
[3] http://www.dof.virginia.gov/infopubs/_sof/SOF-2016_pub.pdf
[4] http://www.dof.virginia.gov/infopubs/_sof/SOF-2016_pub.pdf

has a global warming potential 25 times higher than CO_2. In addition to utilizing residuals, more than 97% of electricity produced by pulp and paper mills is generated through the use of highly efficient combined heat and power (CHP).[5] CHP provides energy efficiencies in the range of 50% to 80% at forest products mills.

b. The carbon neutrality of biomass is recognized in existing U.S. law and numerous internationally-accepted carbon accounting and reporting frameworks.

In Section 431 of the Consolidated Appropriations Act for fiscal year 2018, Congress directs EPA, DOE, and USDA to ensure that federal policy relating to forest bioenergy is consistent across all federal departments and agencies and recognizes the full benefits of the use of forest biomass for energy, conservation, and responsible forest management. The language of Section 431, which has bi-partisan support, was passed in 2017, and was reaffirmed in 2018. It states as follows:

> SEC. 431. To support the key role that forests in the United States can play in addressing the energy needs of the United States, the Secretary of Energy, the Secretary of Agriculture, and the Administrator of the Environmental Protection Agency shall, consistent with their missions, jointly—
>
> (1) ensure that Federal policy relating to forest bioenergy—
> (A) is consistent across all Federal departments and agencies; and
> (B) recognizes the full benefits of the use of forest biomass for energy, conservation, and responsible forest management; and
>
> (2) establish clear and simple policies for the use of forest biomass as an energy solution, including policies that—
> (A) **reflect the carbon-neutrality of forest bioenergy and recognize biomass as a renewable energy source, provided the use of forest biomass for energy production does not cause conversion of forests to non-forest use.**

Several states also have laws recognizing the carbon neutrality of biomass, including Washington (RWC 70.235.020) and California (17 CCR § 95852), and RGGI itself states:

> CO_2 emissions from eligible biomass reduce the total CO_2 allowance compliance obligation of the emitting unit. Emissions from eligible biomass should be deducted from the regional total of CO_2 emissions for purposes of calculating emissions from CO_2 budget sources subject to RGGI CO_2 allowance compliance obligations.[6]

Additionally, biomass CO_2 emissions either are not reported or reported separately or for information purposes only in many domestic and international GHG regulations and protocols, including, but not limited to, the following:

- U.S. Department of Energy 1605 (b);
- Midwest Greenhouse Gas Reduction Accord Advisory Board recommendations;

---

[5] https://sustainability.afandpa.org/wp-content/uploads/2017/02/AFPA-2016-Sustainability-Report_FINAL.pdf
[6] https://www.rggi.org/allowance-tracking/emissions

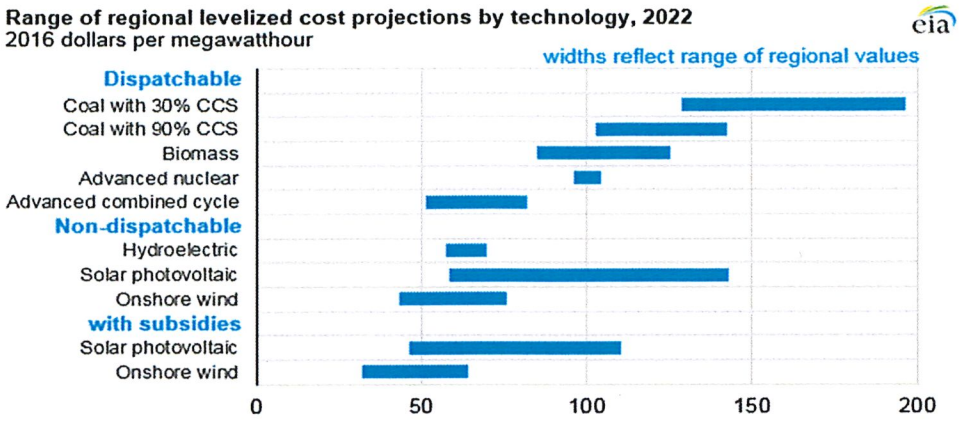
- U.S. Environmental Protection Agency's (EPA) Mandatory Greenhouse Gas Reporting Rule;
- World Resources Institute/World Business Council for Sustainable Development (WRI/WBCSD);
- International Standards Organization (ISO) 14064;
- United Nations Intergovernmental Panel on Climate Change, as well as the GHG reporting protocols of the United Nations Framework Convention on Climate Change;
- Quebec Cap-and-Trade System for GHG Emissions Allowances;
- Western Climate Initiative;
- European Union Emissions Trading System; and
- European Union Renewable Energy Directive.

c. Forest biomass used to generate energy should be treated as carbon neutral where forest carbon stocks are stable or rising on a broad regional scale using U.S. Forest Service Forest Inventory Analysis (FIA) data.

The Board is seeking comment on the potential impacts of the Proposed Rule on forest land preservation. Studies show that recognizing the carbon neutrality of biomass will not negatively impact forest inventories due to the avilability of lower cost renewable fuel options. In one such study, the U.S. Energy Information Administration (EIA) modeled the potential impact of the Clean Power Plan on the use of biomass for energy generation.[7] Table E16 from this study shows an increase of 0.4 billion BTUs from biomass in 2025 (from 9.6 without it to 10 with it), an increase of 2.2 billion BTUs in 2040 (from 13.9 to 16.1) and an increase of 5.8 billion BTUs in 2050 (from 15.2 to 21). Converted into tons of wood, these increases of 0.4, 2.2, and 5.8 billion BTUs represent 384,615, 2,115,385 and 5,576,923 dry tons of wood, or 0.1%, 0.8% and 2.0% of total U.S. harvest (276. 6 million dry tons annually) in 2025, 2040 and 2050, respectively. In all EIA scenarios modeled, co-firing of biomass was projected to decrease under the Clean Power Plan.

In the long term, biomass is not viewed as a strategic, large scale, cost-effective alternative to fossil fuel. Modeling performed by the EIA shows that stand alone biomass energy plants are not considered cost competitive. In a recent article,[8] EIA discusses the costs of various electricity generation technologies. The article shows that by 2022, onshore wind will have a lower levelized cost than biomass in all U.S. regions, and solar photovoltaic will be less costly than biomass in some regions. Subsidies will tend to make solar and wind even more competitive. The ranges shown in the Figure 1 reflect regional differences in levelized costs.

[7] https://www.eia.gov/outlooks/aeo/section_appendices.php
[8] www.eia.gov/todayinenergy/detail.php?id=31052&src=email



Studies also show that strong demand for biomass actually helps prevent forestland from being converted to other uses. A U.S. Department of State report based on EPA and USDA analysis shows that strong demand for forest products will increase forest carbon stocks through ongoing landowner investment.[9] Strong markets for biomass and other forest products stimulate forestland ownership and encourage landowners to invest in management practices that keep forests healthy." A key driver for accelerating forest growth and regeneration is to create strong markets for biomass that will stimulate investments. Farmers and forest landowners, as with all business owners, respond to markets and invest in strategies to produce more and earn more when facing increasing demand."[10] The most significant deforestation threat in the U.S. is forest conversion, not policies that recognize the carbon neutrality of biomass.[11]

The findings of the studies referenced above are consistent with the data for Virginia. Specifically, FIA data shows that for the southern region, the growth versus removals ratio in 2016 was 1.76 (with growth and removals of 13,764,129 and 7,813,003 cubic feet of wood, respectively).[12] The ratio for Virginia, which is part of the FIA southern region, is even higher at 2.29.

Current forest inventories and the current net sink that exists in the Commonwealth is subject to the protections of a state law that caps the amount of biomass that Virginia utilities may utilize for energy under the Renewable Portfolio Standards (RPS) program. The Virginia Code (23 VAC 56-585.2) states:

> Utilities participating in such program shall collectively, either through the installation of new generating facilities, through retrofit of existing facilities or through purchases of electricity from new facilities located in Virginia, use or cause to be used no more than a total of 1.5 million tons per year of green wood chips,

---

[9] 2016 Second Biennial Report of the United States of America Under the United Nations Framework Convention on Climate Change, December 2015.
[10] Robert Johansson, Chief Economist, USDA – June 2015 blog, www.usda.gov/media/blog/2015/06/8/study-finds-increasing-wood-pellet-demand-boosts-forest-growth-reduces)
[11] See USDA Integrated Projections for Agriculture and Forest Sector Land Use, Land Use Changes, and GHG Emissions and Removals (USDA, January 2016), Table 14, page 21.
[12] https://www.fia.fs.fed.us/program-features/rpa/docs/2017%20RPA_TABLES%20Federal%20Register%20Review%20Draft%20032917-pdf.pdf

> bark, sawdust, a tree or any portion of a tree which is used or can be used for lumber and pulp manufacturing by facilities located in Virginia, towards meeting RPS goals, excluding such fuel used at electric generating facilities using wood as fuel prior to January 1, 2007 (emphasis added).

For perspective, approximately 19.4 million tons of wood were harvested in Virginia in 2015[13].

d. Recommended changes to the Proposed Rule to properly recognize the carbon neutrality of biomass.

In summary, WestRock recommends that the Board and DEQ revise the Proposed Rule to ensure that all biogenic CO_2 emissions are treated as carbon neutral, consistent with congressional directive, the RGGI programs in other states, and widely accepted GHG accounting and reporting protocols. To accomplish this, we recommend the addition of the following language to 9 VAC 5-140-6040 ("Applicability"):

> C: Emissions from the combustion of any forest-derived biomass shall not be considered a greenhouse gas subject to the regulation if:
>
> (1) timberland carbon stocks, based on United States Forest Service Forest Inventory and Analysis data for the United States South Region, are stable or increasing relative to the 2005 carbon stocks assessment for this region; or
>
> (2) the forest-derived biomass is from forest products manufacturing residuals, harvest residues, or waste-derived feedstocks, including used wood products.

To the extent the final regulation requires the monitoring and reporting of GHG emissions, WestRock urges the Board and DEQ to allow covered facilities to separately calculate and report biogenic and fossil fuel CO_2 emissions as is currently allowed under the various established GHG reporting protocols listed in section b above.

2. Industrial Sources

The Board is seeking comment on whether any fossil fuel power generating unit owned by an individual facility and located at that individual facility that generates electricity and heat from fossil fuel for the primary use of operation of the facility should be exempt from the requirements of this regulation. As currently drafted, the Proposed Rule excludes industrial sources from coverage, and WestRock supports this

a. The Governor's directives support the exclusion of industrial sources from the scope of the Proposed Rule.

Governor McAuliffe's Executive Order 57 and Executive Directive 11, the authorities upon which the Proposed Rule is based, limit the scope of the rulemaking to the electric power generation sector. Specifically, Executive Directive 11 (May 16, 2017), "Reducing Carbon Dioxide Emissions from the Electric Power Sector and Growing Virginia's Clean Energy Economy," states that the

[13] Virginia Department of Forestry; derived from Virginia Forest Product Tax data

Director of the Department of Environmental Quality shall, in coordination with the Secretary of Natural Resources, "develop a proposed regulation for the State Air Pollution Control Board's consideration to abate, control, or limit CO_2 from electric power facilities." Executive Order 57 is worded similarly and directs the Secretary of Natural Resources to convene a Work Group to study and recommend methods to reduce carbon emissions from "electric power generation facilities." These directives manifest a clear intention to exclude industrial sources from the Proposed Rule, and any effort to include industrial sources at this stage of the rulemaking process would be arbitrary and capricious and violate the state's administrative procedures.

In addition to these legal concerns, inclusion of industrial sources within the scope of the Proposed Rule is unnecessary and cannot be justified on a cost/benefit basis. According to the EIA, industrial sources in Virginia emit 11.6 million metric tons of CO_2 and comprise 11% of emissions in the state compared to 30% by the electric utility sector, and 43% by the transportation sector.[14] Further, EPA data indicates that GHG emissions from Virginia's industrial sector have decreased 31% since 2000.[15] On the other hand, including industrial sources within the Proposed Rule to achieve an additional 30% decrease in emissions to meet the RGGI cap would cost Virginia businesses $18.9 million to $41 million, respectively, over ten years.[16]

b. RGGI programs in other states also exclude industrial sources.

The Proposed Rule's industrial exemption is consistent with the intent and scope of the existing RGGI program, which does not regulate emissions from industrial sources. In fact, except for the purposes of reporting, there do not appear to be any industrial sources listed in the RGGI CO_2 Allowance Tracking System's (RGGI COATS) downloadable list of regulated sources.[17] A decision to include industrial sources in Virginia in RGGI would not only put the Commonwealth at odds with other RGGI participating states, it would put Virginia industry at a competitive disadvantage. Furthermore, RGGI allowance prices are based on the marginal cost to reduce GHG emissions from the utility sector and do not reflect the ability for industrial sources to reduce emissions. Subjecting industrial facilities to allowance markets that are not reflective of their own marginal costs would be unfair and poor public policy.

In summary, the Governor's directives clearly apply only to electric generating facilities, and DEQ properly included an exemption for industrial facilities in the Proposed Rule consistent with other RGGI state programs. Moreover, industrial sources could not be included in the rulemaking at this juncture without violating the state's administrative procedures. Neither the Economic Impact Assessment, the proposed emissions cap, nor the allowance allocation and price modeling conducted by DEQ and its consultants included emissions from industrial sources. Similarly, the charge given to the Regulatory Advisory Panel, convened to discuss design elements of the Proposed Rule, did not include consideration of industrial sources.

c. Recommended changes to the Proposed Rule to clarify the industrial exemption.

WestRock recommends that the Board and DEQ maintain the industrial exemption, but we believe the exemption should be clarified by adding the definition of electric generating unit found in

---

[14] https://www.eia.gov/environment/emissions/state/analysis/
[15] https://19january2017snapshot.epa.gov/sites/production/files/2016-08/documents/co2ffc_2014.pdf
[16] This analysis assumes that of 3.48 million metric tons of CO_2 emissions would be reduced at a cost of approximately $5.44/ metric ton to $11.79/ metric ton.
[17] https://rggi-coats.org/eats/rggi/

Section 10.1-1328 of the Virginia Code to distinguish between industrial and electric power facilities as it relates to the term "primary use."

Additional clarification is also warranted related the importance of relying on net electricity flows when determining primary use. Steam and electricity generation at an industrial facility is, almost without exception, for the primary use of the facility. However, in practice, the actual flows of electricity may reflect buy-sell contractual arrangements or engineering constraints due to the facility's physical connection to the grid. It is not uncommon for an industrial CHP facility generating electricity to meet the primary needs of its operation, to export all that it generates and purchase 100% of its electricity needs. Therefore, for the purposes of determining "primary use of the operation," it is imperative that net electricity flows (exports less imports) be considered to ensure that industrial generation is not unintentionally included in the rule simply by virtue of contractual arrangements or the nature of its physical connection to the grid. Net electricity exports can be calculated as a percentage of total generation by the simple equation ((sales – purchase) / generation) x 100).

Although WestRock owns its onsite CHP operations, we recognize that in some cases CHP operations may not be owned by the facility where they are located due to financing arrangements. To promote the use of highly efficient combined heat and power, DEQ should remove the requirement that fossil fuel power generating unit located at an industrial facility also be owned by the facility.

3. Regulatory Cost-Benefit

If the Proposed Rule is promulgated, it is certain that electricity costs in Virginia will rise. DEQ's economic analysis suggests that the impact of this cost increase will be no more 1.1 percent ($2015) by 2031, the year after the maximum CO_2 emission reduction has been achieved.[18] However, other studies suggest that the increase in electricity prices for residential and industrial consumers may be far more significant. According to a report cited by the Virginia Manufacturers' Association in its comments on the Proposed Rule, electricity costs in the RGGI states rose by 4.6 percent between 2007 (pre-RGGI) and 2015, which was 64 percent higher than the increase in electricity costs in a sampling of five non-RGGI states.[19] Increases in the cost of electricity for large consumers like WestRock may make Virginia a less attractive place for future investments than neighboring states without carbon reduction mandates. Increases in the costs of electricity generated in Virginia also may lead to the use of more imported electricity from areas without CO_2 reduction mandates, which has the potential to undermine any environmental improvements from the Proposed Rule. Per questions posed by DEQ in the proposed rule, we encourage the retention of free allowances and a cap of 34 million tons (or higher), both of which may help moderate the cost of the program.

WestRock, the industrial sector, and the utility sector have significantly reduced their GHG emissions through capital investment in more energy efficient energy generation, production processes and the use of lower carbon fuels. This trend is expected to continue both through ongoing capital investment and as part of the commitments made by WestRock and others to

---

[18] This cost information was developed by ICF, a contractor hired by the Georgetown Climate Center to analyze the potential impacts of Virginia's participation in RGGI.

[19] Cato Institute Working Paper: A Review of the Regional Greenhouse Gas Initiative, Aug. 10, 2017, pp. 6-7. The non-RGGI comparison states were Illinois, Ohio, Oregon, Pennsylvania and Texas, all of which, like the RGGI states, have deregulated their electric power sector

meet voluntary GHG reduction goals. We encourage the Board and DEQ to bear these trends in mind as they consider the Proposed Rule and chart a path for Virginia's future.

4. Summary

Current forest inventories and the net sink that exists in the Commonwealth are the beneficial result of public policies that create strong markets for biomass and encourage landowners to invest in management practices that keep forests healthy. The Proposed Rule's treatment of biogenic emissions from the combustion of biomass will have far-reaching consequences for current and future investment in forests. WestRock strongly urges the Board and the Department to revise the regulation so that all biomass emissions of CO_2 are treated as carbon neutral consistent with existing U.S. law, as well as internationally-accepted carbon accounting and reporting protocols.

While WestRock has concerns about the impact of the Proposed Rule as discussed in these comments, we strongly support the decision to follow the executive directives that have been issued, as well as the rules established by other RGGI states, and exclude industrial sources of CO_2 emissions. We recommend that the Board and DEQ further refine the industrial exemption by:

(1) Adding the definition of electric generating unit found in Section 10.1-1328 of the Virginia Code to distinguish between industrial and electric power facilities as it relates to the term "primary use;"

(2) Clarifying that net electricity flows (exports less imports) be considered to ensure that industrial generation is not unintentionally included in the rule; and

(3) Removing the requirement that fossil fuel power generating unit located at an industrial facility also be owned by the facility.

Thank you for the opportunity to comment on the Proposed Rule. Please do not hesitate to contact me with any questions about the positions set forth in this letter.

Sincerely,

Nina E. Butler
Chief Sustainability Officer

cc: David Paylor/Virginia DEQ
Mike Dowd/Virginia DEQ